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★ a specification manual for the pacific coast

BUILT-UP ROOFS

Johns-Manville

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville built-up roofs

IN this manual, Johns-Manville offers to architects and engineers, complete and comprehensive built-up roofing specifications covering the usual types of roof deck construction.

Johns-Manville—with a background of over 90 years in the roofing industry—offers a definite specification for every roofing requirement. If you have an extraordinary condition not covered in this manual, please consult the nearest J-M office.

ANALYSIS CHART FOR JOHNS-MANVILLE FLEXSTONE BUILT-UP ROOFS

ON INCLINES ½" TO 6" PER FOOT

TYPE OF ROOF DECK	ROOFING	PAGE	BASE FELTS			FINISHING FELTS (ALL MOPPED)		LBS. OF ASPHALT PER SQUARE
			No. 55 Asphalt Saturated Asbestos Felt	No. 45 Asphalt Saturated Asbestos Felt	No. 30 or No. 40 Asphalt Sat. Rag Felt	No. 15 Asphalt Saturated Rag Felt	15 lb. Asphalt Saturated Asbestos Felt	
Over Wood Decks	Flexstone "Super A"	5	1 (Nail)				3	90
	Flexstone "Standard"	5		1 (Nail)			2	60
	Flexstone "Service"	5			1 (Nail)		2	60
Over Non-Combustible Decks (Including Nailable Types but Excluding Steel†)	Flexstone "Super A"	6	1 (Mop)				2	80
	Flexstone "Standard"	6		1 (Mop)			2	80
	Flexstone "Service"	6			1 (Mop)		2	80
Over Approved Roof Insulation	Flexstone "Super A"	7					4	130
	Flexstone "Standard"	7					3	100
	Flexstone "Service"	7				1	2	100

†On steel decks, roof insulation must first be installed.

ANALYSIS CHART FOR JOHNS-MANVILLE ASPHALT AND GRAVEL (SLAG) BUILT-UP ROOFS

ON INCLINES NOT LESS THAN ½" NOR MORE THAN 2" PER FOOT

TYPE OF ROOF DECK	ROOFING	PAGE	ROSIN SIZED SHEATHING PAPER	PLIES OF NO. 15 ASPHALT SATURATED RAG FELT		LBS. OF ASPHALT PER SQUARE
				(Nail)	(Mop)	
Over Wood Decks (Or Other Nailable Type Decks)	5 ply Asphalt and Gravel	8	1	2	3	150
	4 ply Asphalt and Gravel	8	1	2	2	125
Over Non-Combustible Decks (Excluding Steel†) or Over Approved Roof Insulation	4 ply Asphalt and Gravel	9			4	200
	3 ply Asphalt and Gravel	9			3	175

†On steel decks, roof insulation must first be installed.

ANALYSIS CHART FOR JOHNS-MANVILLE ASPHALT DOUBLE-GRAVELED ROOFS

ON INCLINES 0" TO ½" PER FOOT

TYPE OF ROOF DECK	ROOFING	PAGE	ROSIN SIZED SHEATHING PAPER	PLIES OF 15 LB. ASPHALT-SATURATED ASBESTOS** FELT	LBS. OF ASPHALT PER SQUARE
Over Wood Decks (Or Other Nailable Type Decks)	5 ply Asphalt Double-Graveled	10	1	5	225
	4 ply Asphalt Double-Graveled	10	1	4	200
	3 ply Asphalt Double-Graveled	10	1	3	175
Over Non-Combustible Decks (Excluding Steel†) or Over Approved Roof Insulation	5 ply Asphalt Double-Graveled	11		5	235
	4 ply Asphalt Double-Graveled	11		4	210
	3 ply Asphalt Double-Graveled	11		3	185

**J-M Asphalt-Saturated Rag Felt may be used instead of J-M Asphalt-Saturated Asbestos Felt.
†On steel decks, roof insulation must first be installed.

* Reg. U. S. Pat. Off.

JOHNS-MANVILLE FLEXSTONE BUILT-UP ROOFS

Smooth-Surfaced • Asbestos

ON INCLINES ½" TO 6" PER FT.

Advantages of Flexstone Roofs

Won't dry out from the sun • Made of fireproof and rotproof asbestos • Need no periodic coating • Upkeep expense minimized • No extra weight from slag • No clogging of drains or gutters • Actual roof can be seen • Easy to find and repair leaks • Built for long years of service

FLEXSTONE* roofs combine the best in roofing materials, engineering practice and application methods to achieve a smooth-surfaced asbestos built-up roof which has no superior. Over ninety years of experience in the manufacture of roofing materials, and all the lessons Johns-Manville has learned over that period about the effects of time and weather on roofing, have gone into the making and building of this roof.

Today Flexstone roofs are protecting buildings all over this country and Canada. In many cases, they are still giving satisfactory service after 20, 25 and even 35 years.

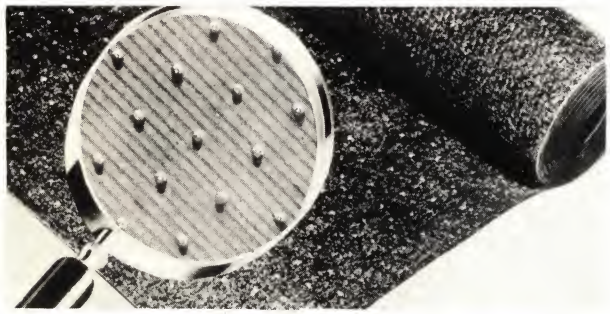
Since Flexstone roofs are made of asbestos felts, they have all the advantages of that ageless mineral. The result is literally *a flexible covering of stone,* which effectively resists the drying out action of the sun . . . will not support combustion . . . and is rotproof, long-lived and easy to maintain. It's economical in cost, too.

To insure proper and skilled application, Flexstone roofs are applied only by Johns-Manville Approved Roofers—roofers who have been carefully selected on the basis of experience, integrity and financial stability.

Designed to give full and lasting protection to the building and its contents, we believe that a smooth-surfaced, asbestos J-M Flexstone roof is the finest built-up roof that can be specified.

* Reg. U. S. Pat. Off.

Magnified Section of J-M Flexstone Roof.



Flexstone Felts are Perforated with Numerous Small Holes.

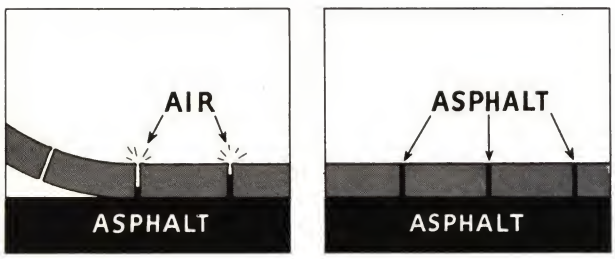


Diagram Shows How Perforations Allow Air to Escape.

After Tests J-M Bonded Asphalt Remained Practically Unchanged.

Why Asbestos Roofs Resist the Drying Out Action of the Sun

Fibres in ordinary roofing felts are hollow. Hence, they act as "wicks" which permit the sun to draw off the asphalt so essential to the life of the roofing felt. But, on the other hand, asbestos fibres are solid—no capillary action is possible and the fibres cannot act as a wick through which the asphalt may be drawn off. Note in illustration (at left), which is a magnified section of a J-M Asbestos Flexstone roof, how the network of solid asbestos fibres in each ply protects the impregnated asphalt within the felt and at the same time, blankets the layer of asphalt below it.

Asbestos Felts Are Perforated to Make Application Easier and to Eliminate Blisters

As illustrated (at left) J-M Asbestos Felt is made with millions of tiny perforations. This latest improvement in the manufacture of asbestos felt makes the felt more flexible. As a result, it lays smoother and conforms better to the irregularities of the roof deck. Each perforation serves as a check valve that opens upward. When the felt is laid in hot asphalt, these valves allow trapped air to escape. No air bubbles remain underneath—bubbles which might later develop into troublesome blisters. The hot asphalt "wells up" through the perforations, completely sealing them from below. The subsequent layer of asphalt then seals them from above.

Johns-Manville Uses a Specially Selected Grade of Asphalt

J-M Bonded Roofing Asphalt has proved to be superior to ordinary asphalts. Tested in the most modern types of weathering machines, Bonded Asphalt remained in virtually its original condition after being subjected to alternate cycles of heat, rain and freezing cold equivalent to ten years of actual service.

Grades of Flexstone Roofs

There are three grades of Flexstone roofs. The best, most durable and longest lived is the "Flexstone Super A". Where a less permanent roof will be satisfactory, or where budget restrictions exist, the "Flexstone Standard" or "Flexstone Service" are designed to give adequate protection.

FOR APPLICATION OVER WOOD DECKS

ON INCLINES ½" TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Super A* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Lay one thickness of Johns-Manville No. 55 Asphalt Saturated Asbestos Felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered.

Second: Over the base felt, lay three plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 10" exposure, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.

Third: Coat entire surface uniformly with Johns-Manville Bonded Asphalt (20 lbs. per square).

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Standard* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except for the following changes:

Change paragraph "First" under "Application of Roofing" to read:

First: Lay one thickness of Johns-Manville No. 45 Asphalt Saturated Asbestos Felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered.

Change paragraph "Second" to read:

Second: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 15" exposure, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.

The Flexstone SERVICE Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Service* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

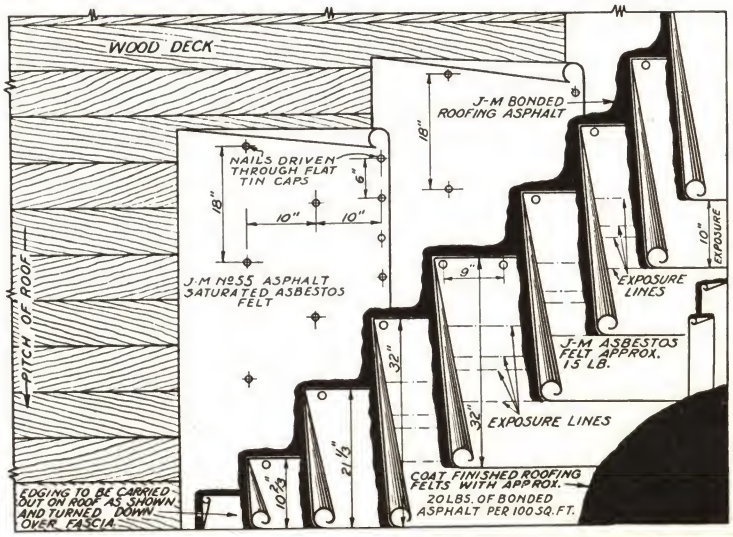
COMPLETE SPECIFICATION

Exactly the same as the *Super A* except for the following changes: Change paragraph "First" under "Application of Roofing" to read:

First: Lay one thickness of Johns-Manville No. 30 Asphalt Saturated Rag Felt or No. 40 Roofing Sheet, lapping the sheets 2", and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 11" apart, nails to be staggered.

Change paragraph "Second" to read:

Second: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 15" exposure, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.



Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over a wood deck.

FOR APPLICATION OVER NON-COMBUSTIBLE DECKS
(Including Nailable Types But Excluding Steel*)

ON INCLINES ½" TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Super A* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Coat the entire surface with Johns-Manville Concrete Primer. On gypsum, where necessary, apply two coats, allowing each to dry. If deck is of pre-cast units, omit the primer 4" each side of all joints.

Second: Lay one thickness of Johns-Manville No. 55 Asphalt Saturated Asbestos Felt, lapping the sheets 2", spot mopping under each with 20 lbs. of Johns-Manville Bonded Asphalt per square.

Third: If roof construction permits, nail at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered. If deck is of precast units, the asphalt shall be omitted 4" each side of all joints.

Fourth: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 15" exposure, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and if roof construction permits, nailing at 9" centers adjacent to the back edge. With nailing strips provided, nail each sheet of the base felt at 6" centers at each nailing strip. Nail each sheet of the finishing felt at each nailing strip ¾" from the back edge.

Fifth: Coat entire surface uniformly with Johns-Manville Bonded Asphalt (20 lbs. per square).

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Standard* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except change paragraph "Second" under "Application of Roofing" to read:

Second: Lay one thickness of Johns-Manville No. 45 Asphalt Saturated Asbestos Base Felt, lapping the sheets 2", spot mopping under each with 20 lbs. of Johns-Manville Bonded Asphalt per square.

The Flexstone SERVICE Roof

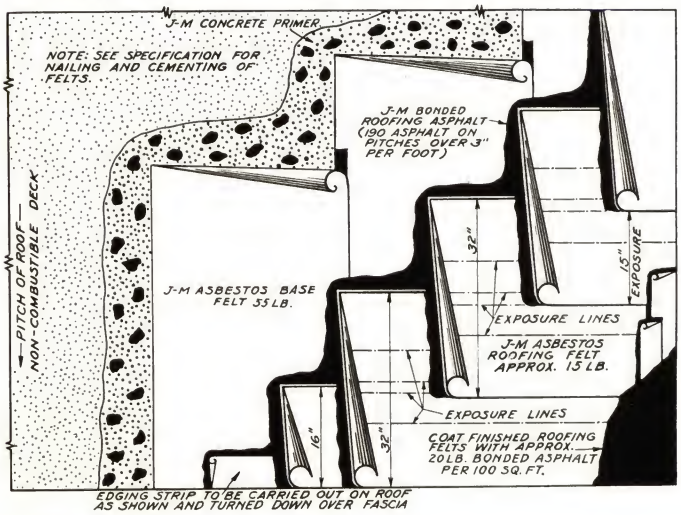
CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Service* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except change paragraph "Second" under "Application of Roofing" to read:

Second: Lay one thickness of Johns-Manville No. 30 Asphalt Saturated Rag Felt or No. 40 Roofing Sheet, lapping the sheets 2", spot mopping under each with 20 lbs. of Johns-Manville Bonded Asphalt per square.



Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over a non-combustible (concrete) deck.

*On steel decks, roof insulation must first be installed.

FOR APPLICATION OVER APPROVED ROOF INSULATION

ON INCLINES ½" TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Super A* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Insulation on deck shall be properly applied to manufacturer's specifications, and be dry and clean. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Lay four plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 7½" exposure and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

Second: If pitch of roof exceeds 3" to the foot and roof construction permits, nail each sheet of the felt at 9" centers adjacent to the back edge. With nailing strips provided as required, nail each sheet of the felt at each nailing strip all nails to be placed so as to be covered by not less than two plies of felt.

Third: Coat entire surface uniformly with Johns-Manville Bonded Asphalt (20 lbs. per square).

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Standard* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except change paragraph "First" under "Application of Roofing" to read:

First: Lay three plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet to provide 10" exposure and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

The Flexstone SERVICE Roof

CONDENSED SPECIFICATION

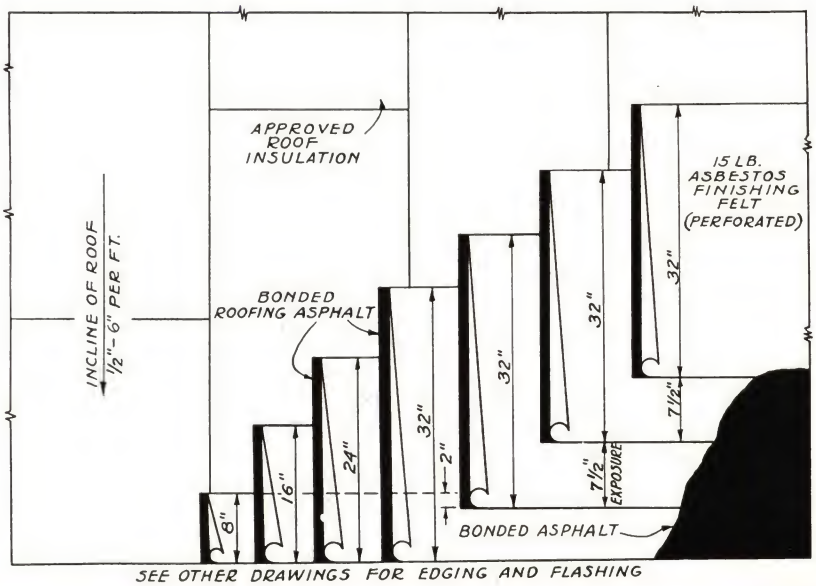
Roofing: Shall be a Johns-Manville Flexstone *Service* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* Specification except change paragraph "First" under "Application of Roofing" to read:

First: Lay one ply of Johns-Manville No. 15 Asphalt Saturated Rag Felt lapping the sheets 2", mopping the full width under each with asphalt. Over the rag felt lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts lapping each sheet to provide 15" exposure and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

NOTE: Johns-Manville roof insulation may be applied to any type roof deck. For specifications see Section 5 of this manual.



Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over Johns-Manville or other approved roof insulation.

FOR APPLICATION OVER WOOD (Or Other Nailable Type) DECKS

ON INCLINES ½" to 2" PER FT.

The 5 Ply Asphalt and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 5 Ply Asphalt and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

First: If over wood sheathing, lay one thickness of Johns-Manville (25 lb. to 500 sq. ft.) Rosin Sized Sheathing Paper, lapping the sheets not less than 1".

Second: Lay two plies of Johns-Manville No. 15 Asphalt Saturated Rag Felt, lapping each sheet 19" over the preceding one and nailing sufficiently to hold in place.

Third: Over these felts lay three additional plies of Johns-Manville No. 15 Asphalt Saturated Rag Felt, lapping each sheet to provide a 17" exposure, mopping the full width under each with Johns-Manville Asphalt and nailing at 24" centers adjacent to the back edge.

Fourth: Over the entire surface pour a uniform coating of Johns-Manville Asphalt and imbed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 square feet of surface.

General: Not less than 150 lbs. of asphalt should be used for constructing each 100 square feet of completed roof.

The 4 Ply Asphalt and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 4 Ply Asphalt and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

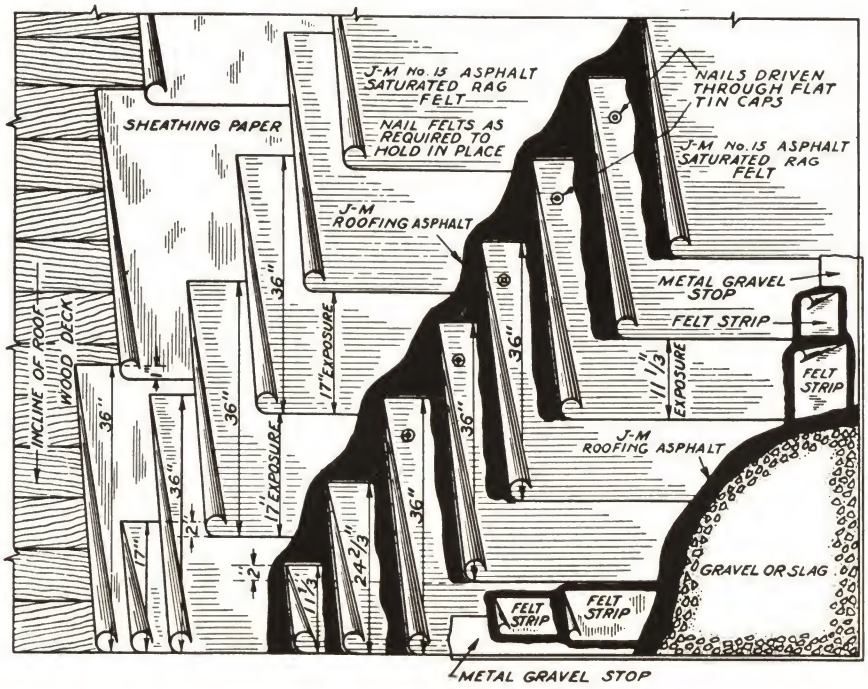
COMPLETE SPECIFICATION

Exactly the same as the 5 Ply Asphalt and Gravel Roof except for the following changes:

Paragraph "Third" under "Application of Roofing" should read:

Third: Over these felts, lay two additional plies of Johns-Manville No. 15 Asphalt Saturated Rag Felt, lapping each sheet to provide a 17" exposure, mopping the full width under each with Johns-Manville Asphalt and nailing at 24" centers adjacent to the back edge.

Under General: Change "150 lbs. of asphalt" to "125 lbs. of asphalt."



Drawing showing how a Johns-Manville 5-Ply Asphalt and Gravel Roof is applied over a wood or other nailable type deck.

FOR APPLICATION OVER NON-COMBUSTIBLE (Except Steel*) DECKS OR OVER APPROVED ROOF INSULATION

ON INCLINES ½" to 2" PER FT.

The 4 Ply Asphalt and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 4 Ply Asphalt and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces. If over roof insulation, insulation shall be properly applied to manufacturer's specifications, and be dry and clean.

Application of Roofing

First: Lay four plies of Johns-Manville No. 15 Asphalt Saturated Rag Felt, lapping each sheet to provide 8½" exposure, mopping the full width under each with Johns-Manville Asphalt. If roof construction is of precast units, the asphalt applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If incline exceeds 1" per ft., the felt shall be nailed adjacent to upper edge so that all nails shall be covered by not less than three layers of felt.

Second: Over the entire surface, pour a uniform coating of Johns-Manville Asphalt, and imbed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag for each 100 ft. of roof surface.

General: Not less than 200 lbs. of asphalt should be used for constructing each 100 square feet of completed roof.

The 3 Ply Asphalt and Gravel Roof

CONDENSED SPECIFICATION

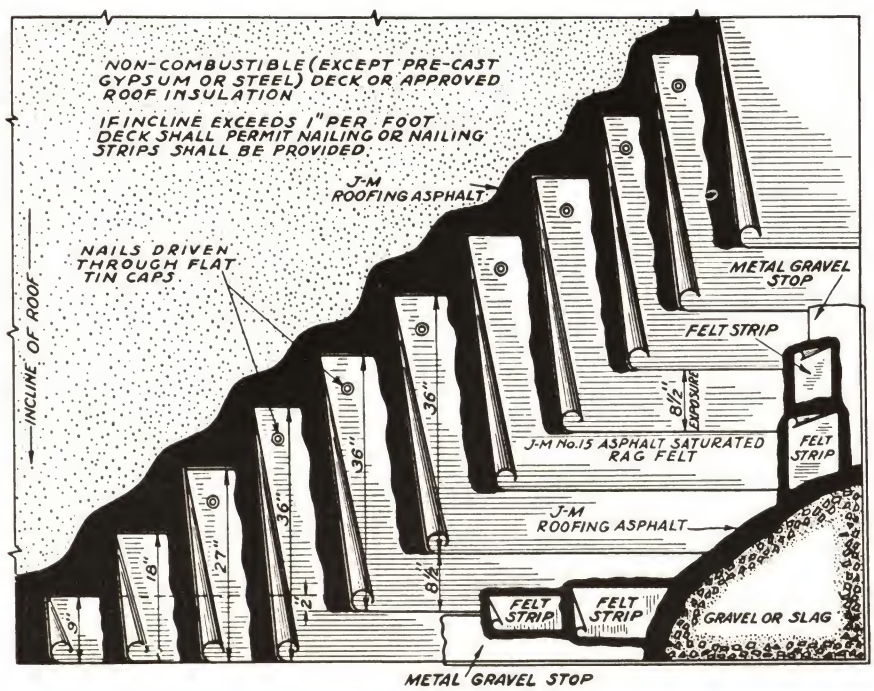
Roofing: Shall be a Johns-Manville 3 Ply Asphalt and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the 4 Ply Asphalt and Gravel Roof except for the following changes: Paragraph "First" under "Application of Roofing" should read:

First: Lay three plies of Johns-Manville No. 15 Asphalt Saturated Rag Felt, lapping each sheet to provide 11⅓" exposure, mopping the full width under each with Johns-Manville Asphalt. If roof construction is of precast units, the asphalt applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If incline exceeds 1" per ft. the felt shall be nailed adjacent to upper edge so that all nails shall be covered by not less than two layers of felt.

Under General: Change "200 lbs. of asphalt" to "175 lbs. of asphalt."



Drawing showing how a Johns-Manville 4-Ply Asphalt and Gravel Roof is applied over a non-combustible (except steel) deck or over approved roof insulation.

FOR APPLICATION OVER WOOD (Or Other Nailable Type) DECKS

FOR INCLINES 0" TO ½" PER FT.

The 5 Ply Asphalt Double-Graveled Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 5 Ply Asphalt Double-Graveled Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

First: If over wood sheathing, lay one thickness of Johns-Manville (25 lb. to 500 sq. ft.) rosin size sheathing, lapping the sheets not less than one inch.

Second: Lay four plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt*, lapping each sheet to provide a 7½" exposure, solidly mopping between the plies only with Johns-Manville Standard Roofing Asphalt and nailing at 24" centers adjacent to the back edge.

Third: Over these felts lay one additional ply of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt*, lapping the sheets not less than 2" and mopping the full width under each with Johns-Manville Standard Roofing Asphalt.

Fourth: Over the entire surface pour a uniform coating of Johns-Manville Standard Roofing Asphalt and embed therein, while hot, not less than 250 lbs. of gravel or approved crushed stone for each 100 sq. ft. of roof surface.

Fifth: Remove any loose surfacing and immediately pour another uniform coating of Johns-Manville Standard Roofing Asphalt and embed therein, while hot, not less than 250 lbs. of gravel or crushed stone for each 100 sq. ft. of roof surface. All particles shall be firmly embedded so there shall be no loose surfacing in the finished job. The surface shall be lightly rolled if necessary.

The 4 Ply Asphalt Double-Graveled Roof

COMPLETE SPECIFICATION

Exactly the same as the 5 Ply Roof except paragraph "Second" under "Application of Roofing" should read:

Second: Lay three plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt*, lapping each sheet to provide a 10" exposure, (balance of paragraph remains the same).

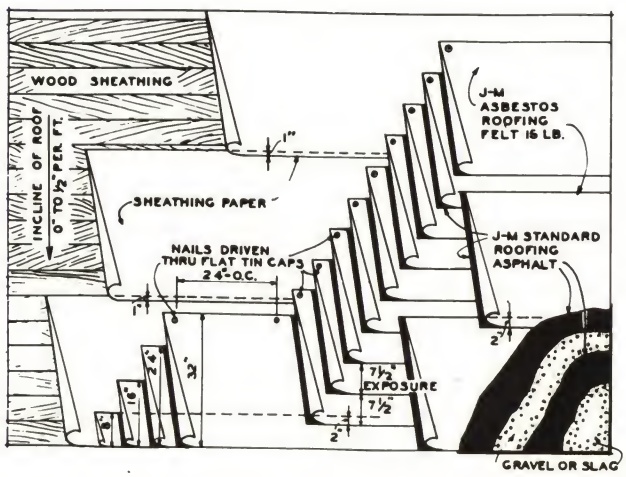
The 3 Ply Asphalt Double-Graveled Roof

COMPLETE SPECIFICATION

Exactly the same as the 5 Ply Roof except paragraph "Second" under "Application of Roofing" should read:

Second: Lay two plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt*, lapping each sheet to provide a 15" exposure, (balance of paragraph remains the same).

**While the use of asbestos felts is preferable, Johns-Manville 15 lb. Asphalt-Saturated Rag Felt may be used instead of Johns-Manville 15 lb. Asbestos Felt. When using the Asphalt-Saturated Rag Felt, lap each sheet to provide an 8½" exposure for the 5-Ply Roof, and 11⅓" exposure for the 4-Ply Roof, and a 17" exposure for the 3-Ply Roof.*



Drawing showing how a Johns-Manville 5-Ply Asphalt Double-Graveled Roof is applied over a wood or other nailable type deck using asbestos felts.

FOR APPLICATION OVER NON-COMBUSTIBLE (Excluding Nailable Type and Steel*) DECKS OR OVER APPROVED ROOF INSULATION

FOR INCLINES 0" TO ½" PER FT.

The 5 Ply Asphalt Double-Graveled Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 5 Ply Asphalt Double-Graveled Roof applied in accordance with the manufacturer's specifications and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces. If over roof insulation, insulation shall be properly applied to manufacturer's specifications, and be dry and clean.

Application of Roofing

First: Coat the entire deck with Johns-Manville Concrete Primer, 1 gal. per 100 sq. ft. of roof area if over concrete deck or 1½ gal. to 2 gal. if over a gypsum deck. Where necessary on gypsum decks, apply two coats, allowing each coat to dry. Omit this first step if the roof is to be applied over Roof Insulation.

Second: Lay four plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Roofing Felt**, lapping each sheet to provide 7½" exposure, spot mopping the deck and solidly mopping between plies with Johns-Manville Standard Roofing Asphalt. If over Roof Insulation, these felts shall be solidly mopped to the insulation as well as solidly mopped between plies with the asphalt.

Third: Over these felts, lay one additional ply of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt**, lapping the sheets not less than 2", mopping the full width under each with Johns-Manville Standard Roofing Asphalt.

Fourth: Over the entire surface, pour a uniform coating of Johns-Manville Standard Roofing Asphalt and embed therein, while hot, not less than 250 lbs. of gravel or approved crushed stone for each 100 sq. ft. of roof surface.

Fifth: Remove any loose surfacing and immediately pour another uniform coating of Johns-Manville Standard Roofing Asphalt, into which, while hot, embed not less than 250 lbs. of gravel or approved crushed stone for each 100 sq. ft. of roof surface. All particles shall be firmly embedded so that no loose ones appear in the finished job. The surface shall be lightly rolled, if necessary.

The 4 Ply Asphalt Double-Graveled Roof

COMPLETE SPECIFICATION

Exactly the same as the 5 Ply Roof except paragraph "Second" under "Application of Roofing" should read:

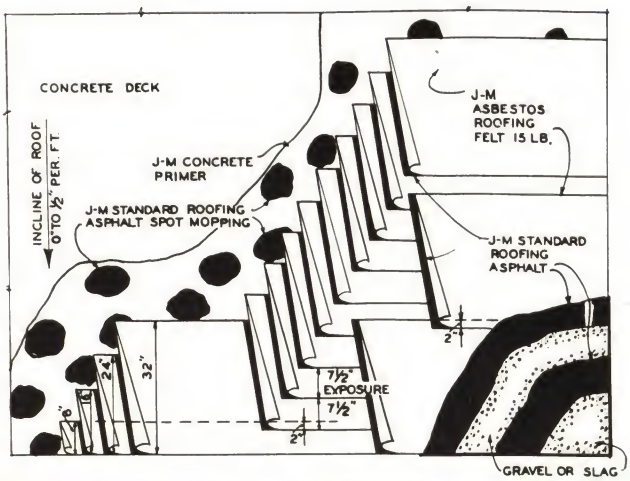
Second: Lay three plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Roofing Felt**, lapping each sheet to provide 10" exposure, (balance of paragraph remains the same).

The 3 Ply Asphalt Double-Graveled Roof

CONDENSED SPECIFICATION

Exactly the same as the 5 Ply Roof except paragraph "Second" under "Application of Roofing" should read:

Second: Lay two plies of Johns-Manville 15 lb. Asphalt-Saturated Asbestos Felt**, lapping each sheet to provide 15" exposure, (balance of paragraph remains the same).



Drawing showing how a Johns-Manville 5-Ply Asphalt Double-Graveled Roof is applied over non-combustible decks, excluding nailable types and steel decks, or over approved roof insulation.

**On steel decks, roof insulation must be installed.*
***While the use of asbestos felts is preferable, Johns-Manville 15 lb. Asphalt-Saturated Rag Felt may be used instead of Johns-Manville 15 lb. Asbestos Felt. When using the Asphalt-Saturated Rag Felt, lap each sheet to provide an 8½" exposure for the 5-Ply Roof, 11¾" exposure for the 4-Ply Roof, and 17" exposure for the 3-Ply Roof.*

Many times it is desirable, for the sake of appearance, to have color in a built-up roof. In the following Specifications, Johns-Manville Split Sheet Slatekote Roofing is specified for the finishing felts. Since Split Sheet Slatekote is surfaced with red, green or black mineral granules, it presents an attractive, colorful appearance. The mineral granules also serve to protect the felts against the drying out action of the sun.

FOR APPLICATION OVER WOOD DECKS

ON INCLINES 3" to 6" PER FT.

The Split Sheet Slatekote Built-Up Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Split Sheet Slatekote Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

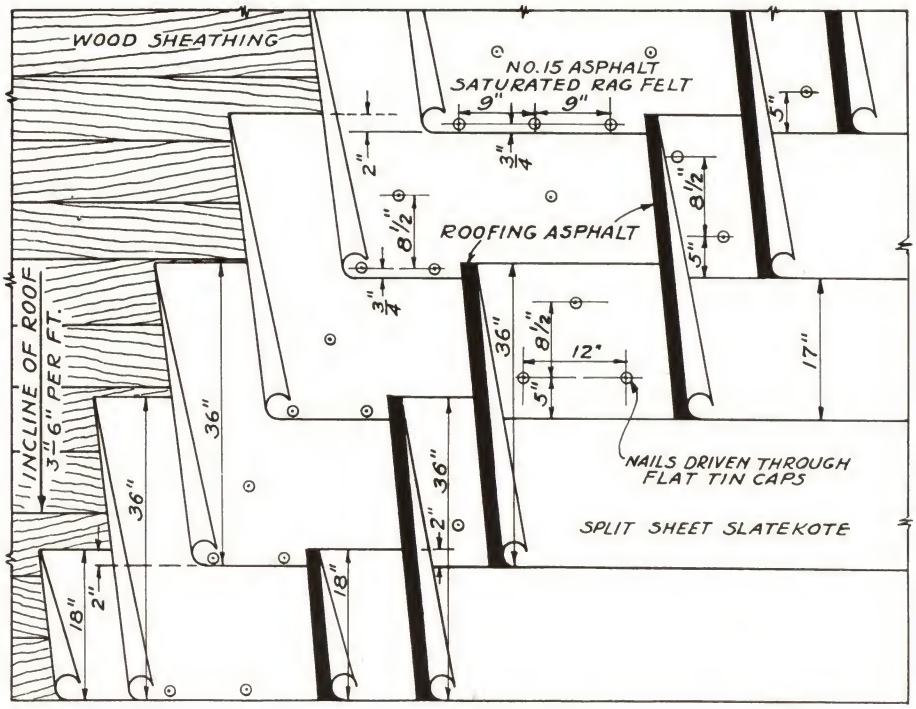
Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

First: Lay two plies of the No. 15 felt, lapping each sheet 19" over the preceding one and nailing at 9" centers adjacent to exposed edge and at 9" centers, 8½" therefrom, the nails in each row to be in staggered relation.

Second: Over these felts lay the Slatekote, lapping each sheet 19" over the selvaged edge of the preceding one, mopping the full width under each with the asphalt and nailing through the selvaged portion with two rows of nails 8½" apart, the first row to be 5" from the edge of the slate surfacing, nails to be spaced at 12" centers, the nails in each row to be in staggered relation. Lap the ends of the sheets 6". Scrape the slate surfacing from the overlapped portions of the underlying sheet, nail at 6" centers, 2" from the edge, and mop the full width of the lap with the asphalt.



Drawing showing how a Johns-Manville Split Sheet Slatekote Built-Up Roof is applied over a wood deck.

FOR APPLICATION OVER NON-COMBUSTIBLE DECKS (Including Nailable Types But Excluding Steel*)

ON INCLINES 3" to 6" PER FT.

The Split Sheet Slatekote Built-Up Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Split Sheet Slatekote Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

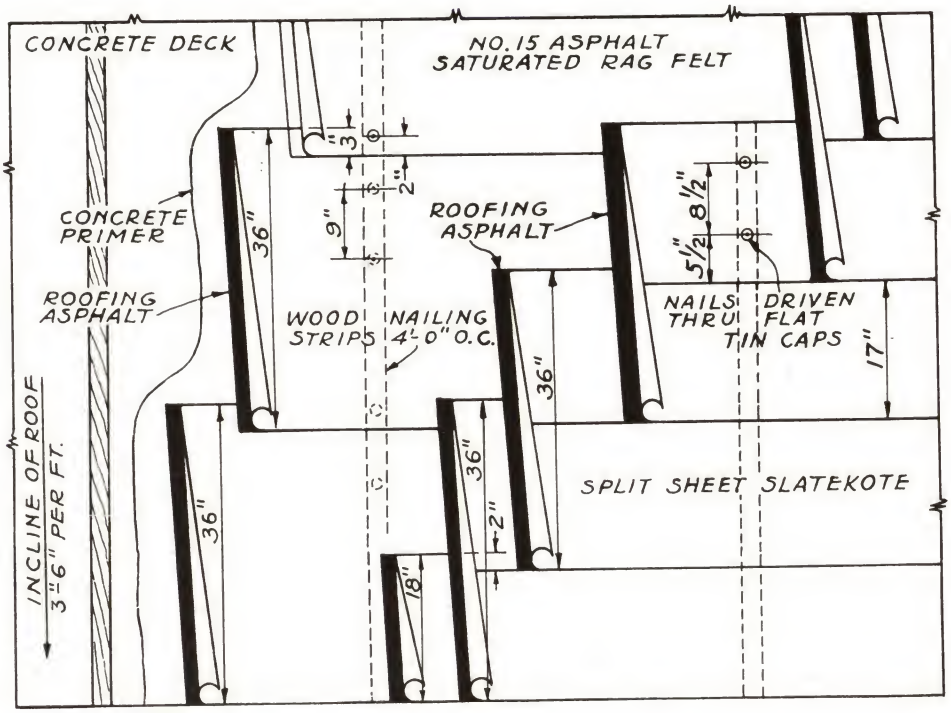
First: Coat all surfaces which are to receive the roofing with the primer and allow to dry. If deck is of precast units, the primer shall be omitted 4" each side of all joints.

Second: Lay one ply of the No. 15 felt, lapping the sheets 3", mopping the full width under each with the asphalt, and, if roof construction permits, nailing at 12" centers through the laps. If deck is of precast units, the asphalt shall be omitted 4" each side of all joints. If poured-gypsum deck, the asphalt shall be applied by "spot-mopping."

Third: Over the No. 15 felt lay two plies of the Slatekote, lapping each sheet 19" over the unsurfaced portion of the preceding one, mopping the full width under each with asphalt, and, if roof construction permits, nailing through the unsurfaced portion in two lines spaced 8½" apart, the first line to be 5" from the edge of the slate surfacing, the nails to be spaced at 12" centers and staggered. Lap the ends of the sheets 6". Scrape the slate surfacing from the overlapped portion of the underlying sheet, nail at 6" centers, 2" from the edge, and mop the full width of the lap with asphalt.

With nailing strips provided as required, nail each sheet of the No. 15 felt at 9" centers at each nailing strip. Nail each sheet of the Slatekote through the unsurfaced portion with two nails at each nailing strip, spaced at 8½" centers, the first to be 5" from the edge of the slate surfacing.

**On steel decks, roof insulation must first be installed.*



Drawing showing how a Johns-Manville Split Sheet Slatekote Built-Up Roof is applied over a non-combustible deck.

FOR APPLICATION OVER CONCRETE DECKS TO BE OVERLAID WITH PROMENADE SURFACING

ON INCLINES NOT EXCEEDING 1" PER FT.

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Built-Up Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean and properly graded to outlets.

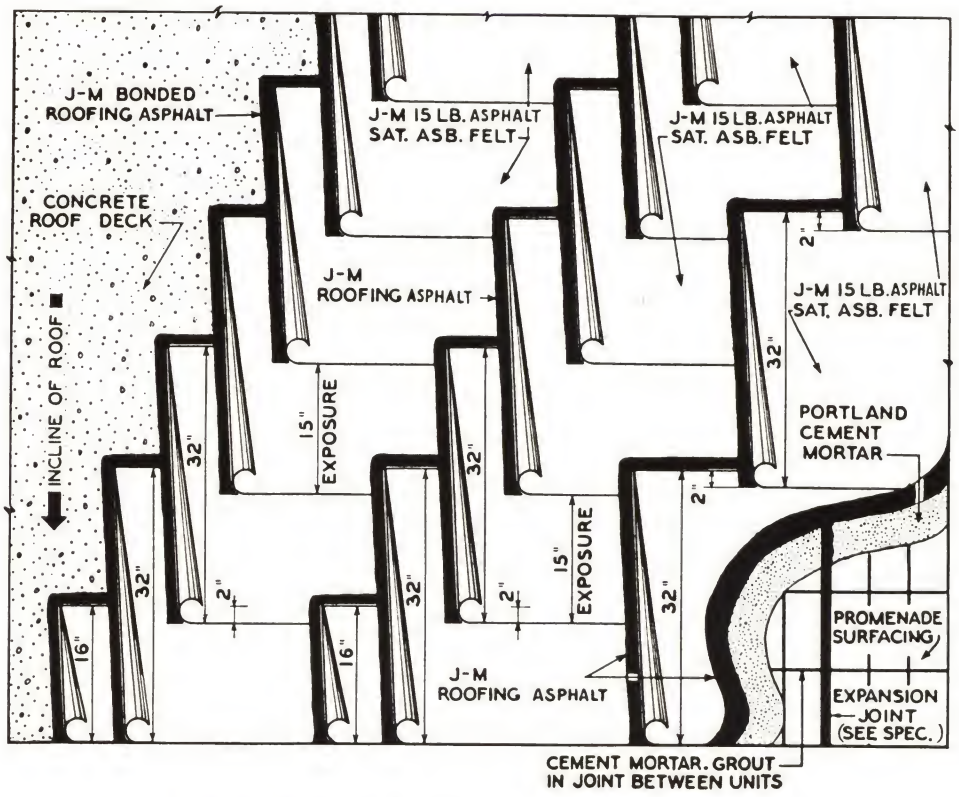
Application of Roofing

First: Lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felt, lapping each sheet to provide a 15" exposure, mopping the full width under each with Johns-Manville Asphalt. Then apply two additional layers of the felt, lapping each sheet to provide a 15" exposure, mopping the full width under each with the asphalt.

Immediately preceding the laying of the promenade tile or other surfacing material, thoroughly clean the roof surface and lay one additional ply of Johns-Manville Asphalt Saturated Asbestos Felt, lapping each sheet 2" over the preceding one, mopping the full width under each with Johns-Manville Asphalt. Then coat the entire surface with the asphalt. No more of the roof surface shall be covered with the last ply of felt and asphalt than can be immediately covered with the surfacing material.

Second: Lay the promenade surfacing in a bedding of Portland cement mortar not less than 1" thick, with expansion joints in both directions on not greater than 20 ft. centers, and also at all walls, curbs and other vertical surfaces. Expansion joints shall be not less than 1" wide and shall extend from the top of the surfacing through the mortar bed to the roofing, filled with asphalt. All joints between the surfacing, other than expansion joints, shall be grouted with Portland cement mortar.

General: All flashing shall be of sheet metal.



Drawing showing how a Johns-Manville Built-Up Roof is applied over a concrete deck which is to be overlaid with a promenade surfacing.

The Johns-Manville Asbestile* System of Flashing . . . Insures Proper Treatment of All Critical Areas

More than any other place on the roof a leak is apt to develop at the junction formed by the roof deck and a vertical surface. To give the required degree of protection at such points, Johns-Manville has developed the Asbestile System of Flashing. Asbestile is a heavy-bodied plastic cement designed to give thorough water tightness where used in conjunction with asbestos flashing felts. As Asbestile sets, it becomes hard and forms an integral part of the wall itself.

SUPER A BASE AND CAP FLASHING EXTENDED THROUGH BRICK WALL

THIS IS OUR NUMBER ONE RECOMMENDATION AND SHOULD BE USED WHEREVER POSSIBLE

CONDENSED SPECIFICATION

All flashings shall be applied in accordance with the Johns-Manville Super A Asbestile Flashing System, and shall be installed by a contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Base Flashing

Primer:

Prime the entire brick surface over which flashing is to be applied with Concrete Primer. Allow it to dry.

Base Flashing:

All base flashing and backer felt shall be applied to extend not less than 6″ high on the vertical surfaces and not less than 4″ on the roof. Such dimensions shall be measured from top and bottom edges, respectively, of cants, coves or fillets.

The surface of the roof and adjoining surfaces which are to receive the backer felt shall be mopped with asphalt which is not to extend above top of base flashing. Immediately press the backer felt in place. The surface of the backer felt to receive the base flashing shall be mopped with asphalt, which is not to extend above the top of the backer felt.

The base flashing shall then be mopped on the fabric side with asphalt and pressed immediately into place, nailing the top edge into brick joints or wood nailing strips, not to exceed 4″ centers horizontally. The ends of the sheets shall be lapped not less than 3″, nailing not to exceed 4″ centers vertically, cemented and covered with Three-Course Asbestile.

The edge of the base flashing on roof shall be covered with a 4″ felt strip, embedded in and coated over with asphalt but shall not be nailed to roof deck.

Cap Flashing:

Apply Five-Course Asbestile so that each of the two layers of felt will overhang the wall and later overlap the base flashing at least 4″. Lap ends of felt 3″ and seal with Asbestile.

On the top of the wall, trowel a ⅛″ thickness layer of Asbestile to within 2″ of the outside face of the wall and embed one layer of felt.

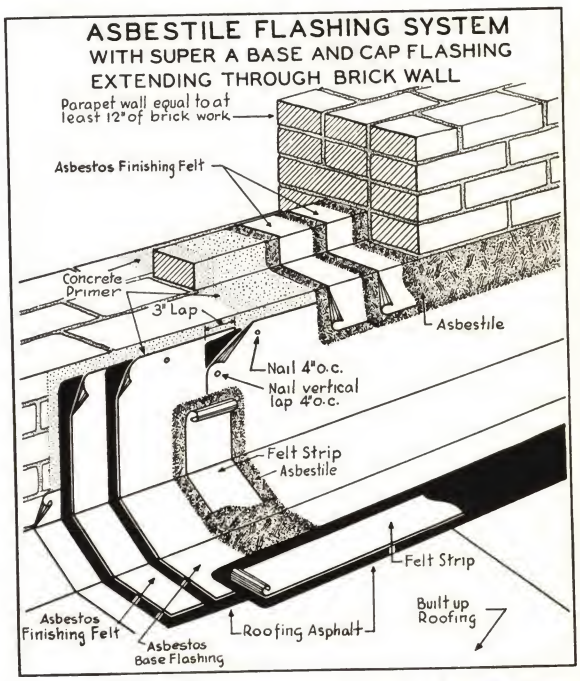
Then, over the felt on the top of the wall, apply another ⅛″ troweling of Asbestile, into which embed the second layer of felt. Finish off with the third and final ⅛″ troweling of Asbestile.

After the parapet is completed, the overhanging felt shall be brought down over the base flashing in the following manner:

First, coat vertical wall with ⅛″ troweling of Asbestile to extend down over base flashing at least 4″. Then embed the overhanging felt into this troweling of Asbestile. Apply over the felt a second troweling of Asbestile, into which embed the second layer of overhanging felt. Trowel over the felt a final coating of Asbestile, bringing it to a feather edge over the base flashing and to a straight line at the top edge of the projecting felt.

Surfacing:

The face of base and cap flashing shall be coated with Regal Roof Coating to extend from the roof surface to the top edge of the projecting felt.



Drawing showing how Johns-Manville Super A Asbestile System of Flashing (base and cap) is applied when extended through the wall.

* Reg. U. S. Pat. Off.

SUPER A BASE AND CAP FLASHING EXTENDING UP FULL HEIGHT OF WALL AND UNDER COPING

THIS IS OUR NUMBER ONE RECOMMENDATION AND SHOULD BE USED WHEREVER POSSIBLE

CONDENSED SPECIFICATION

All flashings shall be applied in accordance with the Johns-Manville Super A Asbestile Flashing System, and shall be installed by a contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Base Flashing

Primer:

Prime the entire brick surface over which flashing is to be applied with Concrete Primer. Allow it to dry.

Base Flashing:

All base flashing and backer felt shall be applied to extend not less than 6" high on the vertical surfaces and not less than 4" on the roof. Such dimensions shall be measured from top and bottom edges, respectively, of cants, coves or fillets.

The surface of the roof and adjoining surfaces which are to receive the backer felt shall be mopped with asphalt which is not to extend above top of base flashing. Immediately press the backer felt in place. The surface of the backer felt to receive the base flashing shall be mopped with asphalt, which is not to extend above the top of the backer felt.

The base flashing shall then be mopped on the fabric side with asphalt and pressed immediately into place, nailing the top edge into brick joints or wood nailing strips, not to exceed 4" centers horizontally. The ends of the sheets shall be lapped not less than 3", nailing not to exceed 4" centers vertically, cemented and covered with Three-Course Asbestile.

The edge of the base flashing on roof shall be covered with a 4" felt strip, embedded in and coated over with asphalt but shall not be nailed to roof deck.

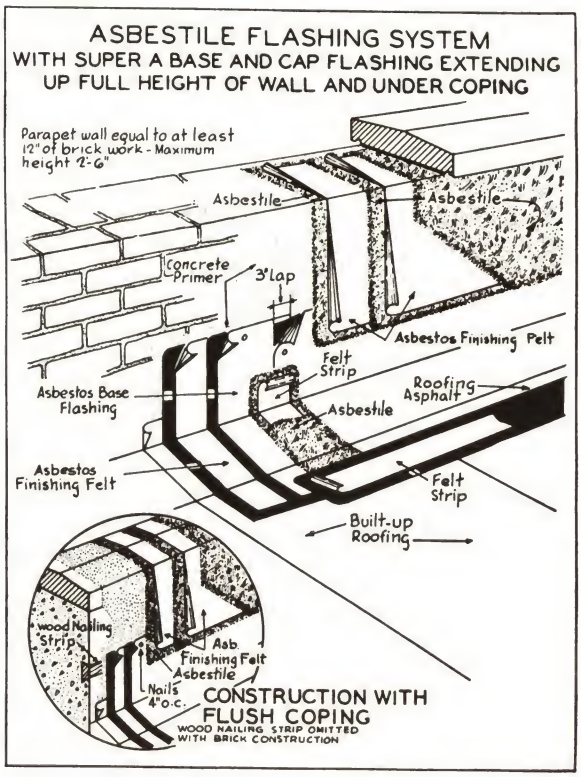
Cap Flashing:

On the top of the wall, trowel a ⅛" thickness of Asbestile to within 2" of outside wall and over the inside face of the wall, extending down to a point 4" below the top edge of the base flashing. Embed in Asbestile a ply of felt extending on top of the wall and on inside face of wall. A second layer of Asbestile, ⅛" thick, shall then be troweled over the inside face of the wall, extending down to a point 4" below the top edge of base flashing and continued up over the top of wall to within 2" of outside face. A second ply of asbestos felt shall be embedded therein. Lap sheets 3" and seal with Asbestile.

Over this felt, apply the final ⅛" layer of Asbestile, troweled over and finished to a feather edge and to a straight line at lower edge, extending below top of base flashing at least 4".

Surfacing:

The face of the base and cap flashing shall be coated with Regal Roof Coating to extend from the roof surface to the under side of the coping.



Drawing showing how Johns-Manville Super A Asbestile System of Flashing (base and cap) is applied when extended up the parapet and over or under the coping.

THE STANDARD ASBESTILE FLASHING SYSTEM

THIS FLASHING METHOD IS SECOND ONLY TO THE SUPER A SYSTEM AND CAN BE USED FOR BOTH NEW AND EXISTING WORK. IT IS DESIGNED FOR USE WHERE CONDITIONS DO NOT WARRANT THE APPLICATION OF THE SUPER A FLASHING SYSTEM

CONDENSED SPECIFICATION

All flashings shall be applied in accordance with the Johns-Manville Standard Asbestile Flashing System and shall be installed by a contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Base Flashing

First: Strike a chalk line 3" above top of base flashing and prime the wall to this line. Allow the primer to dry.

The surface of the roof and adjoining surfaces which are to receive the base flashing shall be mopped with Johns-Manville Bonded Asphalt which is not to extend above top of base flashing.

Second: Johns-Manville Asbestos Base Flashing shall then be mopped with asphalt and pressed immediately into place, nailing the top edge into brick joints or wood nailing strips, at not to exceed 4" centers horizontally. The base flashing shall be applied to extend not less than 6" high on the vertical surfaces and not less than 4" on the roof. Such dimensions shall be measured from the top and bottom edges, respectively, of cants, coves or fillets.

The ends of the sheets shall be lapped not less than 3", nailing not to exceed 4" centers vertically, cemented and covered with ⅛" Course of Johns-Manville Asbestile with a 4" wide strip of Johns-Manville 15 lb. Perforated Asbestos Felt imbedded therein and finished with a second course of Asbestile troweled on. The edge of the base flashing on roof shall be covered with a 4" wide Johns-Manville 15 lb. Perforated Asbestos Felt strip, imbedded in and coated over with asphalt but shall not be nailed to the deck.

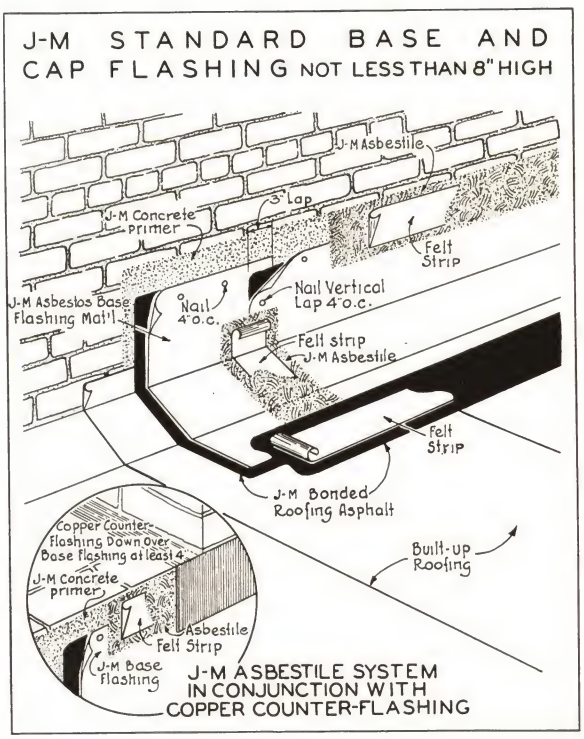
Cap Flashing

Combined cap and base flashing should be not less than 8" high.

Trowel on a layer of Johns-Manville Asbestile 5" wide and ⅛" thick, to cover completely the nails on top of the Johns-Manville Base Flashing. Into this imbed a 4" wide strip of Johns-Manville 15 lb. Asbestos Felt, over which apply another ⅛" troweling of Asbestile.

Bring the Asbestile to a feather edge and finish it neatly in a straight line.

The face of the flashing shall be coated with Johns-Manville Regal Roof Coating to extend from the roof surface to the top of the cap flashing.



Drawing showing how Johns-Manville Standard Asbestile System of Flashing (base and cap) is applied.

Johns-Manville Roof Insulation Pays for Itself

TODAY, these five advantages of roof insulation are well recognized by architects and engineers.

1—Roof insulation retards the passage of heat through the roof; this saves fuel and cuts air-conditioning costs.

2—Insulation helps insure comfortable, uniform working conditions and hence increases production.

3—Insulation helps protect the roof deck against deterioration and rot which may eventually result in the costly necessity of building a completely new roof deck.

4—An insulated roof prevents condensation and roof drip which may ruin finished ceilings and walls, and even damage equipment and stocks of merchandise.

5—Insulation provides protection to the roofing felts. It acts as a "cushion" separating the roofing from the deck and therefore helps prevent the felts from cracking due to the cycles of alternate expansion and contraction in the deck.

It can be readily perceived that these various savings in operating costs, increased efficiency, protection of the building structure and of the roofing felts, will in a short time offset the initial cost of the roof insulation and then continue to pay substantial dividends during the entire life of the roof.

Johns-Manville Furnishes Two Types of Roofing Insulation

JOHNS-MANVILLE ROCK CORK* INSULATION which is basically a mineral insulation that cannot rot or decay. It is exceptionally efficient and moisture resistant.

JOHNS-MANVILLE ROOFINSUL*, made in four styles, provides light weight, efficient, low cost roof insulation for all types of roof decks.

Standard Roofinsul is made of pine fibres interlaced, felted and rolled into board form.

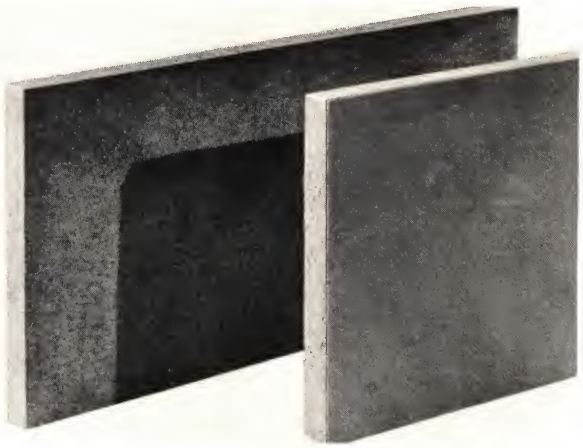
Coated Roofinsul is the Standard material coated with asphalt on all six sides.

*Weathertite** *Roofinsul* is impregnated with a coal tar admixture, but is not coated with asphalt.

Coated Weathertite Roofinsul is both impregnated with a coal tar admixture and coated with asphalt on all six sides, assuring a board which is highly resistant to surface moisture, mold and fungus growth.

* Reg. U. S. Pat. Off.

Here Johns-Manville Roofinsul is Being Applied.



Johns-Manville Rock Cork Cannot Rot or Decay.

Johns-Manville Roofinsul is Rigid and Structurally Strong.

Note: In these specifications when Johns-Manville Flexstone roofs are specified *over* the insulation, use J-M Asphalt Saturated Asbestos Felts and J-M Bonded Asphalt (the cementing agent) *under* the insulation.

When Johns-Manville Tar and Gravel Roofs are specified *over* the insulation, use J-M Tar Saturated Asbestos Felts and Bonded Pitch (the cementing agent) *under* the insulation, except over steel decks. Here Asphalt Saturated Asbestos Felts and Bonded Asphalt are used *under* the insulation even though the finished roof is to be Tar and Gravel.

FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER WOOD DECKS

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

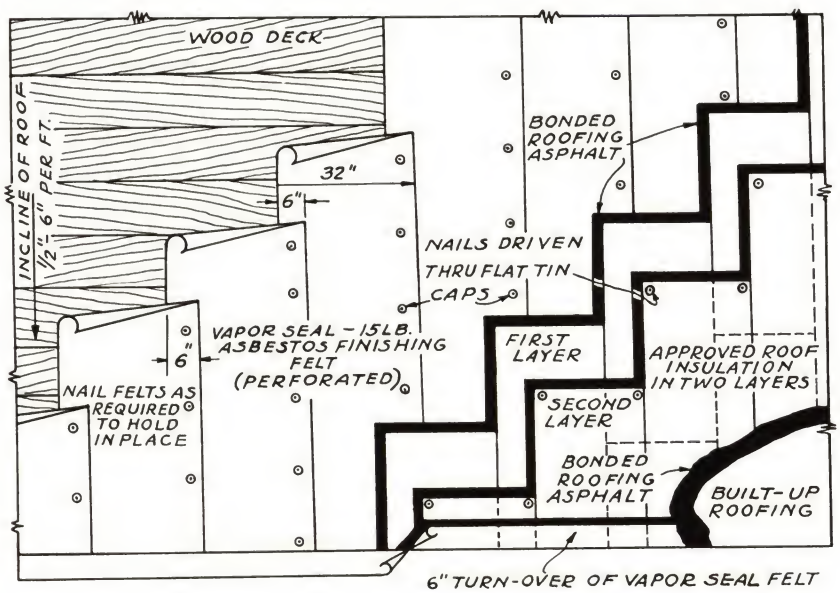
Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one and nailing sufficiently to hold in place. If a tar and gravel roof is to be applied over the insulation on a wood deck, under the insulation lay one thickness of Johns-Manville (25 lbs. to 500 sq. ft.) rosin sized sheathing. Then lay two plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt, lapping each sheet 17" over the preceding one, nailing sufficiently to hold in place. The felt shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation, and shall overhang all roof edges a similar amount.

Third: Lay Johns-Manville Roof Insulation with the long-dimension joints continuous and at right angles to the sheathing, and with short-dimension joints broken, mopping the full width under each sheet. The edges of the sheets at the joints shall be thoroughly sealed. Nail each sheet of the insulation at 24" centers adjacent to the longitudinal edges and staggered through the longitudinal center.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



Drawing showing how Johns-Manville Roof Insulation is applied over a wood deck when a Flexstone roof is to be applied.

FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER NON-COMBUSTIBLE DECKS
(Including Nailable Types But Excluding Steel)

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

If incline exceeds 3" per foot, roof deck shall permit nailing or wood nailing strips shall be provided.

If asphalt is used as cementing agent, coat the entire surface with Johns-Manville Concrete Primer. On gypsum, where necessary, apply two coats, allowing each to dry. If deck is of precast units, the primer shall be omitted 4" each side of all joints.

Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one, mopping the full width under each.

The felt applied under the insulation shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

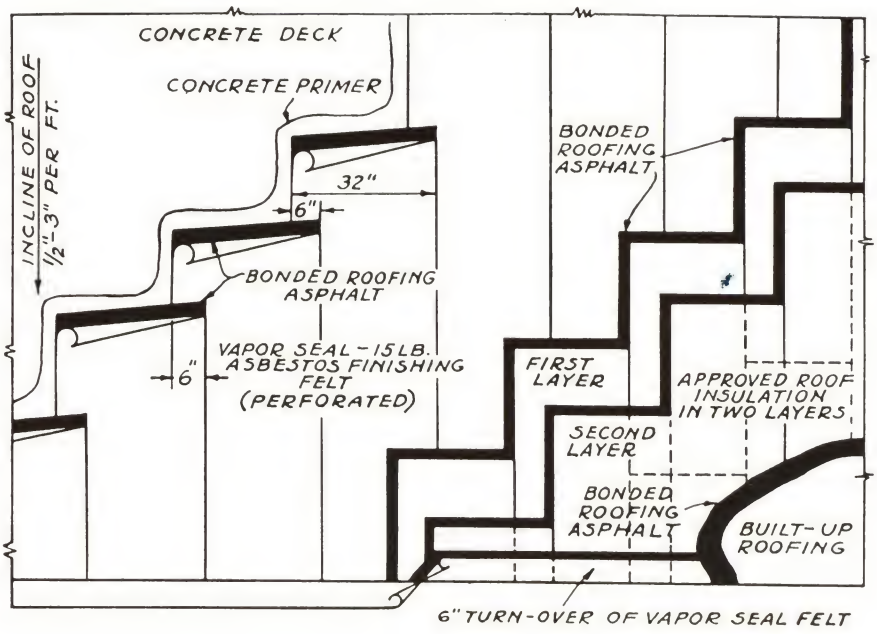
If roof construction is of precast units, the cement applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If poured-gypsum deck, the cementing agent shall be applied by "spot-mopping."

Third: Mop solid Johns-Manville Roof Insulation with all end joints broken. The edges of the sheets at the joints shall be thoroughly sealed. If roof construction permits, nail each sheet of the insulation at 24" centers adjacent to the longitudinal edges and staggered through the longitudinal center. With wood nailing strips, provided as required, nail each sheet of the insulation at each nailing strip at 12" centers.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



Drawing showing how J-M Roof Insulation is applied over a non-combustible deck (including nailable types but excluding steel) when a Flexstone roof is to be applied on deck inclines of ½" to 3" per ft. On inclines 3" to 6" per ft, it is nailed to wood nailing strips embedded in deck on not greater than 4-ft centers and at right angles to directon in which felts are run.

FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER STEEL DECKS

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. If steel deck has not been shop primecoated or if coating is incomplete or damaged, the entire deck or uncoated areas shall be painted with Johns-Manville Concrete Primer and allowed to dry.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one, mopping the full width under each. The felt applied under the insulation shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

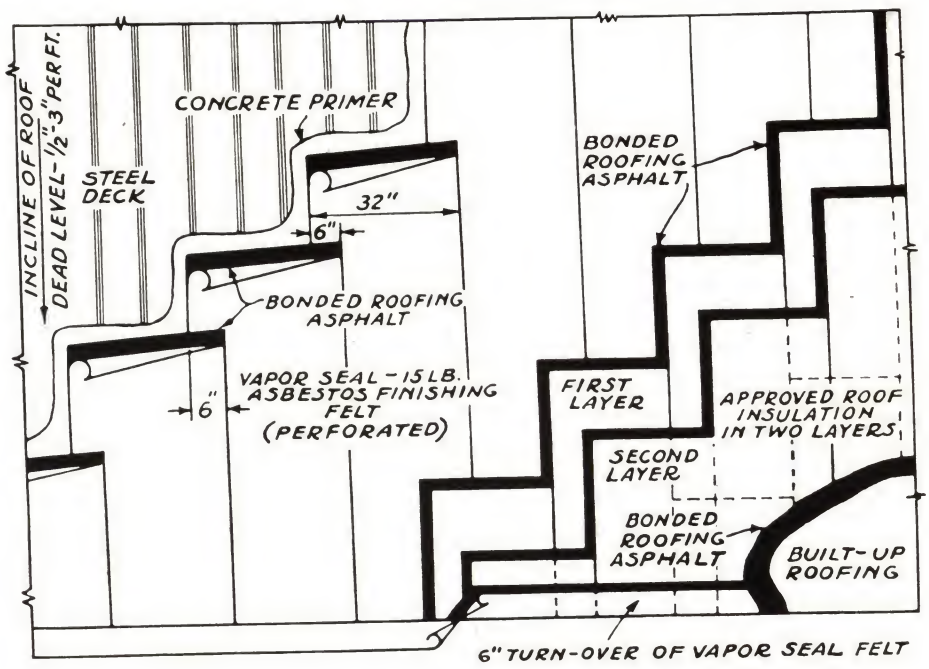
If use of felt is impractical, apply hot asphalt to underside of insulation before laying.

Third: Mop solid Johns-Manville Roof Insulation with all end joints broken, using expanding nails, self tapping screws or other approved fastening devices. The edges of the sheets at the joints shall be thoroughly sealed. If incline exceeds 3" per foot, secure each sheet of the insulation with not less than five fasteners per sheet.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all fastening done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



Drawing showing how Johns-Manville Roof Insulation is applied over a steel deck, when a Flexstone roof is to be applied on deck inclines of ½" to 3" per ft. On inclines 3" to 6", each sheet of insulation is secured with not less than 5 fasteners per sheet.

Note how adaptable Corrugated Transite is to roof construction where monitors and penthouses project from main roofing areas.

Corrugated Transite* Roofing

Corrugated Transite Asbestos Roofing is made of asbestos fibres and cement united under hydraulic pressure into dense, unlaminated, monolithic sheets of great strength and rigidity. It is designed for application directly over purlins of skeleton steel or wood frame construction. It will not burn or rust, rot, split, crack or curl. In color, it is an attractive light gray. It is weatherproof, highly resistant to corrosion and requires no painting to preserve it.

It does not become warped, distorted or weakened in service; in fact, it actually strengthens and toughens with age. It offers high resistance to acid fumes and severe weather conditions and finds a wide use in industrial plants, as well as in hospitals, libraries, office buildings, railway stations, machine shops, garages and residences. Its easy workability and the speed with which the large units can be erected are but two of its many advantages.

Transite can be readily drilled or sawed and is secured with bolts, screws, clips, etc., designed for that purpose. Special shapes of the same material for use as ridge roll, corner roll, louvres, etc., are available.

Sizes—Sheets are furnished 42 in. wide in lengths from 6 in. through 11 ft. in 6-in. increments. They are approximately $\frac{7}{16}$ in. thick at ridges and valleys of corrugations and approximately $\frac{5}{16}$ in. thick at the slope. The corrugations are 4.2 in. The over-all thickness of the sheets is 1½ in. Approximate weight is 4.1 lb. per sq. ft.

Application—See details on following page. Transite may be applied over roof purlins spaced on not greater than 54-in. centers (minimum roof pitch 3 in. per foot). Sheets are laid with a 6-in. end lap and a one-corrugation side lap, providing an exposure of 37.8 in. Write for complete details.

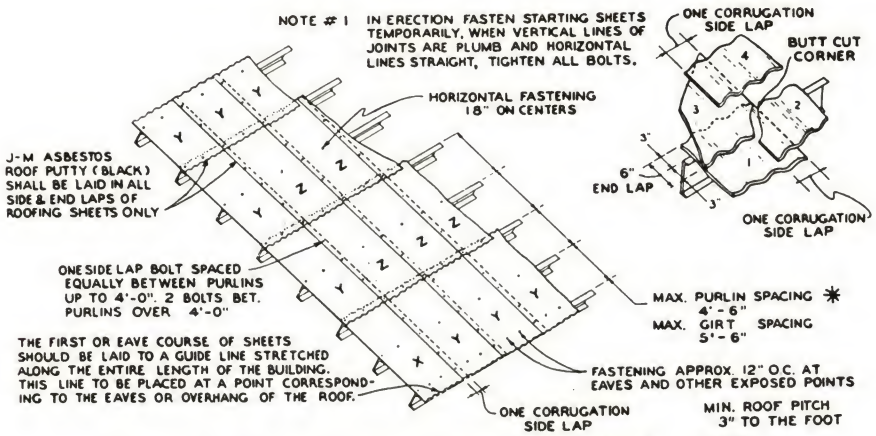
*Reg. U. S. Pat. Off.

Also Used for Siding

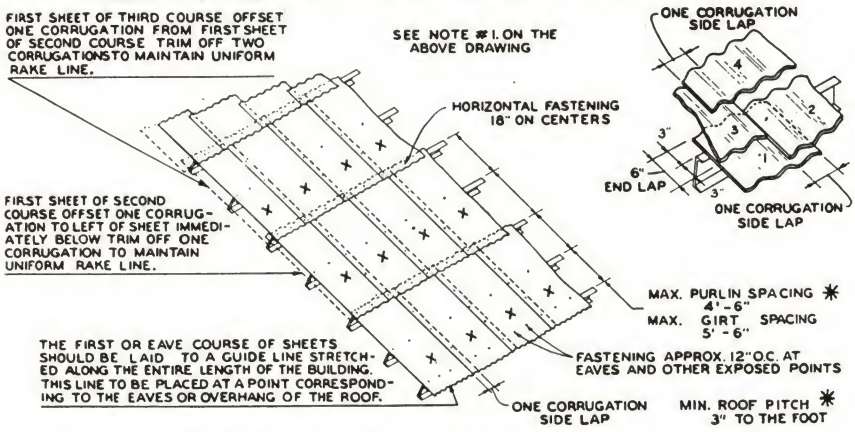
Corrugated Transite is also widely used for siding directly over girts of skeleton steel or wood frame construction. Transite may be applied over siding girts not over 66 in. center-to-center. When used for siding, the sheets are laid with a 6-in. end lap and a one-corrugation side lap, the same as in roofing applications.

In addition to possessing many structural advantages, Transite is attractive in appearance. Note the neat corner construction of this plant building.

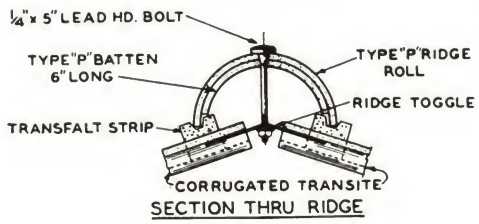
Construction details for 4.2″ Corrugated Transite



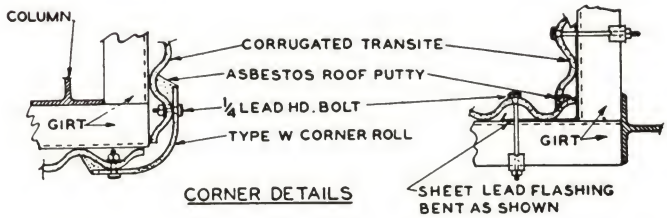
STRAIGHT JOINT CONSTRUCTION WITH CUT-CORNER SHEETS



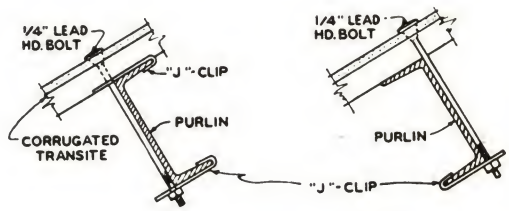
STAGGERED JOINT CONSTRUCTION WITH SQUARE-CORNER SHEETS

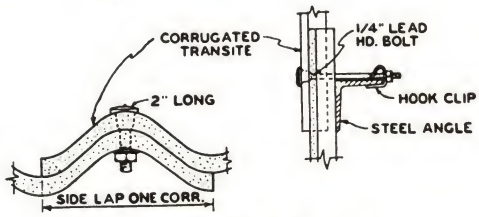


SECTION THRU RIDGE

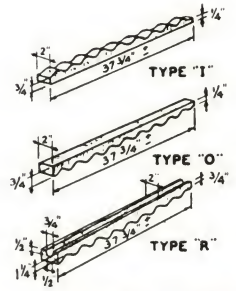


CORNER DETAILS

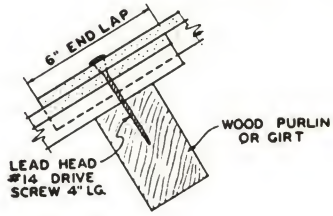


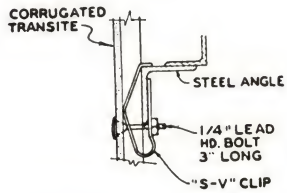


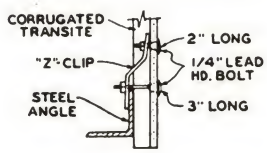
FASTENER DETAILS



TRANSFALT STRIPS







* IN AREAS WHERE STRUCTURAL DESIGN PERMITS ACCUMULATION OF SNOW AND ICE TO CAUSE EXCESSIVE LOADING, REDUCE PURLIN SPACING TO 45" (OR LESS IN EXTREME CASES) AND INCREASE THE MINIMUM ROOF PITCH TO 4".

NOTE BOLT LENGTHS FOR "J" AND HOOK CLIPS = DEPTH OF STEEL PLUS 3". DRILL 9/32" HOLES IN TRANSITE FOR LEAD HD. BOLTS AND ¼" HOLES FOR ROUND HD. BOLTS. WHERE EXCESSIVE VIBRATION EXISTS, A NUT SECURING METHOD SHALL BE EMPLOYED.

Patents No. 2,015,129, 2,021,929 and 2,169,376
Patented Canada 1937

Johns-Manville

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